



# Cortona3D Viewer

## User's Guide

# Table of contents

Introduction	1
The Cortona3D Viewer Window	1
Navigation in Cortona3D Viewer	1
Using Viewpoints	1
Moving around: Walk, Fly, and Study	2
Restore, Fit, and Align	5
Using Keyboard	6
Setting Cortona3D Viewer Options	7
Pop-up Menu	7
General	7
Scene	8
Renderer	8
Navigation	9
Skin	10
Interacting with the Scene	10
Using Cortona3D Viewer in HTML Documents	11
Skins	15

## Introduction

The following sections contain the description of the Cortona3D Viewer main controls:

- The Cortona3D Viewer Window
- Navigating in Cortona3D Viewer
- Setting Cortona3D Viewer Options
- Interacting with the Scene
- Using Cortona3D Viewer in HTML Documents

## The Cortona3D Viewer Window

With Cortona3D Viewer you can see and explore 3D worlds. Cortona3D Viewer will start automatically when you open a file containing VRML world. There are two parts of the Cortona3D Viewer window:

1. The *toolbar*, which contains buttons used to specify navigation type in a world and buttons with predefined actions to change your position in a world.
2. The *3D window*, which shows VRML world.

There is also a *pop-up menu* that you access by pressing the right mouse button while the pointer is over toolbars or 3D window.

Some worlds do not allow you navigating in a world, so toolbars may be invisible.

## Navigation in Cortona3D Viewer



Moving through a 3D space is similar to moving a camera. Think of a video camera that captures images in the real world and converts them into electronic signals for viewing on a screen; it has a position and orientation, and these are independent attributes. Your movements in the world continually position and orient that camera. Use the camera controls on the toolbar to move the camera through the 3D Space.

This concept assumes that there is a real person viewing and interacting with the VRML world. Nevertheless, the VRML author may place any number of viewpoints (or cameras) in the world - interesting places from which the user might wish to view the world. Only one viewpoint may be active at a time. This section describes the mechanisms that Cortona3D Viewer provides for navigating in a three-dimensional space.

## Using Viewpoints

A viewpoint describes a position and orientation for viewing the scene. The VRML author will probably want to guide the user to the best vantage points for viewing it. Not all worlds contain viewpoints, but when they do, you can use them.

To activate a viewpoint, do one of the following:

- Choose Viewpoints from the pop-up menu, and then select a viewpoint from the list of the predefined viewpoints.
-   Click the arrow buttons to move to the next or previous viewpoint. You can also press Page Down or Page Up keyboard button.

### Note:

If there are no predefined viewpoints in a world, the Empty message appears

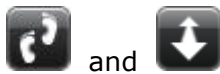
## Moving around: Walk, Fly, and Study

There are three main navigation modes that Cortona3D Viewer offers: WALK, FLY, and EXAMINE. You can switch the navigation mode by clicking buttons on the toolbar (click STUDY to enter EXAMINE mode). Each navigation mode may have several options: PLAN, PAN, TURN, and ROLL. The combination of navigation mode and its option determines the possible camera motion and its orientation. Please note that the VRML author has an opportunity to specify which navigation paradigm should be used in the scene by default. Some worlds don't allow the user to use navigation controls, but they may provide on-screen cues to navigation.

You can navigate with the mouse, the keyboard, or both mouse and keyboard. To move around a 3D world using the mouse:

1. Choose a navigation mode.
2. Position the pointer anywhere in the 3D window and press the left mouse button.
3. Move the mouse while holding down its left button. The *direction* in which you drag the mouse determines the camera motion.
4. Release the left mouse button to stop moving.

**Note:** The *distance* that you drag the mouse determines the *speed* with which the camera moves. If you stop moving the mouse, the camera will continue moving until you release the mouse button. To accelerate the camera's movement or rotation, press SHIFT, CTRL or SHIFT+CTRL.



Use WALK+PLAN to move in a horizontal plane.



Forward - move closer



Backward - move further



Right - turn to the right



Left - turn to the left

**Note:** Move the mouse forward or backward while holding down the Space key to turn upward, downward.

Move the mouse left or right while holding down the ALT key to move left or right.



Use WALK+PAN to move left or right in a horizontal plane.



Forward - move closer



Backward - move further



Right - move right



Left - move left

**Note:** When you move the camera right or left, the world will appear to move in the opposite direction.



Use WALK+TURN to change the angle of the camera in a world.



Forward - turn upward



Backward - turn downward



Right - turn to the right



Left - turn to the left



Use FLY+PLAN to move left or right.



Forward - move the camera forward towards its longitudinal axis



Backward - move the camera backward



Right - turn the camera to the right around its vertical axis



Left - turn the camera to the left around its vertical axis

**Note:** The camera's vertical axis may be inclined in a 3D Space.  
Move the mouse while holding down the ALT key to switch FLY+PAN.  
Move the mouse while holding down the Space key to switch FLY+TURN.  
Move the mouse while holding down the ALT+Space keys to switch FLY+ROLL.



Use FLY+PAN to move up, down, left, or right within a single vertical plane.



Forward - move up



Backward - move down

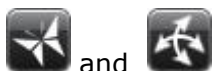


Right - move right







Left - move left

**Note:** When you move the camera, the world will appear to move in the opposite direction.





Use FLY+TURN to turn the camera.

-  Forward - turn the camera upward around its horizontal axis
-  Backward - turn the camera downward around its horizontal axis
-  Right - turn the camera to the right around its vertical axis
-  Left - turn the camera to the left around its vertical axis







Use FLY+ROLL to incline the camera.

-  Right - incline to the left
-  Left - incline to the right







Use STUDY+PLAN to examine an object from various angles.

-  Forward - move the camera forward
-  Backward - move the camera backward
-   Right, Left - move the camera around the central point which is defined by the center of bounding box of the geometry in the 3D scene.



Use STUDY+TURN to examine an object from various angles.

-     Forward, Backward, Right, and Left - move the camera around the central point which is defined by the center of bounding box of the geometry in the 3D scene.

**Note:** Move the mouse while holding down the ALT key to switch STUDY+PAN.  
 Move the mouse while holding down the Space key to switch STUDY+PLAN.  
 Move the mouse while holding down the ALT+Space keys to switch STUDY+ROLL.



Use STUDY+ROLL to incline the camera around the central point which is defined by the center of bounding box of the geometry in the 3D scene.



Right - incline to the left



Left - incline to the right

**Note:** The VRML author can choose the rotation center in the EXAMINE navigation mode. By default, when in EXAMINE mode, Cortona3D Viewer sets the center of rotation in the center of the bounding box of the scene geometry. But it is possible to change this center by specifying three additional values in the avatarSize field of the NavigationInfo node. According to the VRML specification, the first three values are the avatar dimensions, while additional values may be used for browser-specific purposes. In Cortona3D Viewer the fourth, fifth and sixth values specify the center of scene rotation in the world coordinates X,Y and Z.



Use GOTO to move close to object in a world. Select GOTO in the toolbar and then click on an object in the world. You'll move directly to it.

## Restore, Fit, and Align

Cortona3D Viewer provides three mechanisms that can help to re-orient a camera if you have lost your way in a world. Unlike the navigation tools, these buttons invoke predefined actions that take place as you click on them.



Use RESTORE to automatically return to the loaded world's original active viewpoint.



Use FIT to make the scene view fully visible in the Cortona3D Viewer 3D window.



Use ALIGN to position the camera's horizontal and longitudinal axes parallel to the scene horizontal plane.

## Using Keyboard

You can control the camera using keyboard commands. The functionality for buttons corresponds to the movement of your mouse and depends on the navigation type, its option, and the specified skin. Please note that the following description of keyboard commands is presented for the FLY+PLAN navigation and the Default skin.

- Arrow Up - move closer.
- Arrow Down - move further away.
- Arrow Right - turn to the right.
- Arrow Left - turn to the left.
- Arrow Up on the numeric keypad - move closer.
- Arrow Down on the numeric keypad - move further.
- Arrow Right on the numeric keypad - move to the right. If the STUDY mode - move the camera around the center of rotation.
- Arrow Left on the numeric keypad - move to the left. If the STUDY mode - move the camera around the center of rotation.
- 7 on the numeric keypad - turn the camera downward around its horizontal axis.
- 9 on the numeric keypad - turn the camera upward around its horizontal axis.
- 1 on the numeric keypad - incline to the right. Note: It is not available in WALK mode.
- 3 on the numeric keypad - incline to the left. Note: It is not available in WALK mode.
- Gray Plus - move up in the case of FLY mode.
- Gray Minus - move down in the case of FLY mode.
- 1 on the alphanumeric keyboard - incline to the right. Note: It is not available in WALK mode.
- 2 on the alphanumeric keyboard - incline to the left. Note: It is not available in WALK mode.
- 3 on the alphanumeric keyboard - turn downward. If the STUDY mode - move the camera around the center of rotation.
- 4 on the alphanumeric keyboard - turn upward. If the STUDY mode - move the camera around the center of rotation.
- Page Down - next viewpoint.
- Page Up - previous viewpoint.
- Pause - enables or disables CylinderSensor, PlaneSensor, SphereSensor, and TouchSensor in Cortona3D Viewer.
- F - makes the scene view fully visible in the 3D window.

To accelerate the camera's movement or rotation: Press SHIFT, CTRL or SHIFT+CTRL and one of the above keys simultaneously.

The ALT and SPACE keys allow the user to quickly change the navigation option to PAN and TURN accordingly in the FLY navigation mode (to ROLL and PLAN in the STUDY mode). The ALT and SPACE keys simultaneously pressed activate ROLL in the FLY navigation mode or PAN in STUDY.



## Setting Cortona3D Viewer Options

You can change Cortona3D Viewer options via the pop-up menu of 3D window.

You can configure Cortona3D Viewer options according to your preferences. To change settings, choose **Preferences** from the right-button pop-up menu. The ParallelGraphics Cortona Control dialog box is displayed:

- General
- Scene
- Renderer
- Navigation
- Skin

### Pop-up Menu

The following options are supported from the pop-up menu of 3D window:

#### **Viewpoints**

Activates a list of the predefined viewpoints.

#### **Headlight**

Cortona3D Viewer automatically includes a light for the viewer in every world. The headlight always shines directly in front of the camera. You can switch the headlight on and off.

#### **Navigation**

You can select a navigation mode.

#### **Speed**

Controls the rate at which a camera moves through a world.

#### **Full Screen**

This hides most screen elements so that you can view the whole scene. To close Full Screen, press ESC or F11.

#### **Hide/Show Toolbars**

You can show or hide toolbars.

#### **Show/Hide Console**

Shows or hides the VRML console containing errors or warnings (for VRML developers).

#### **Preferences**

Modifies settings for Cortona3D Viewer such as screen appearance, a renderer mode, and other options.

#### **Help**

Lets you view the online Help system, end-user license agreement and general information about Cortona3D Viewer.

### General

#### **Background color**

You can change a background color of Cortona3D Viewer 3D window: Click the Background color box at the General tab, click the desired color from the palette, and then click OK. Please note that VRML authors can also control a color that simulates ground and sky.

**Gradient color**

This option enables a vertical gradient for the background in the 3D window, where the chosen color relates to the bottom of the 3D window. To specify vertical gradient: Click the Gradient color box at the General tab, click the desired color from the palette, and then click OK.

**Show Toolbars**

You can show or hide toolbars.

**Display frame rate**

Allows you to display the frame rate on the status bar.

**Console mode**

Shows or hides the VRML console containing errors or warnings. The ConsoleMode attribute is set to Autolaunch by default. This shows the VRML console if errors or warnings occur.

**CPU load**

Determines the degree of acceleration for Cortona3D Viewer renderer. This allows you to specify the processor usage in the range from 0 (minimum frame rate, maximum the processor idle time) to 100 (maximum frame rate).

**Scene****Scene location**

Shows the currently opened VRML file and lists the files you have recently opened. To quickly reopen one of these files, click it in the Scene location list box and then click Apply. You can also open a document on your computer hard disk or on a network drive that you have a connection to by clicking the Browse button.

**Renderer**

Allows you to select a rendering mode. To draw the 3D image, Cortona3D Viewer provides two hardware renderers: OpenGL and DirectX. If your system has hardware acceleration for either OpenGL or Direct3D, choose the appropriate renderer. Using hardware renderers can introduce limitations. Select a renderer to compare the performance and visual quality and set your preferences accordingly.

**Renderer options****Dither colors if needed**

Controls whether Cortona3D Viewer dithers while rendering. Dithering improves the quality of rendering, but may lower performance.

**Wireframe rendering mode**

The object appears to be outlined with wires rather than solid.

**Anti-aliasing**

The technique for smoothing out jaggies in showing curves on computer monitor. There are two different modes: Idle-time and Real-time. If the Idle-time option is on, it is applied only for static scene. Whereas selecting Real-time initiates smoothing even in the viewer movement but results in decreasing frame rate.

**Do not render textures**

To turn the textures on or off.

**Optimize texture for quality**

All textures are optimized for quality.

**Use textures mip-mapping**

When the scene contains acutely angled polygons that disappear into the distance, mixes low- and high-resolution versions of the same texture to reduce the jagged effect.

**Limit textures size**

This controls the texture resolution of the image being pushed to the graphics card. If the image resolution is bigger the value you choose, the renderer will reduce it. The smaller the resolution, the faster the rendering but poor quality.

**Phong lighting model**

To turn the Phong lighting on or off. The support for Phong lighting model is provided for graphical cards supporting the shader model v.3.0 and higher. Limited support for the shader model v.2.x is also provided.

**Strict VRML97 compliance**

When selected, Cortona3D Viewer renders VRML scene in accordance with the VRML97 Specification. If it is turned off (the default), simplified lighting equations and rendering techniques, which provide higher performance, are used.

**Enable pixel buffer access**

This option should be used for the DirectX renderer only. Select it to ensure access to pixel buffer. This guarantees the production of screenshots when Cortona is used within Cortona SDK applications. Please note that when this option is selected, real-time anti-aliasing is impossible.

**Renderer version**

This is accessible only for Direct3D renderers. Allows you to select a rendering mode.

## Navigation

**Navigation mode**

This allows you to select the navigation mode from a list of available navigation paradigms.

**Travel speed**

Sets the rate at which the viewer travels through a scene. The following are the typical values for the rates, in metres per second: Slowest=0.0625, Slower=0.25, Normal=1, Faster=4, Fastest=16. If the speed field of the NavigationInfo is specified in the VRML file, the corresponding speed factors are multiplied.

**Animate viewpoints**

Sets the Viewpoint transition rules that specify how Cortona3D Viewer interprets the transition from the old viewpoint to the new one. Auto - defined by the jump field of the Viewpoint node of a new location. Always - a jump with the transition effect. Never - instantaneous transition.

**Collision detection**

By default, Cortona3D Viewer will allow you to pass through objects in your path. To prevent from passing through objects, select Always in the Collision detection box at the Navigation tab. Select Auto to use the collision method specified by VRML author.

**Headlight on**

Mark the check box to turn the headlight on.

**Show hidden viewpoint**

This allows you to see all viewpoints of the scene in the VIEW list including those that do not have a description (a Viewpoint's description field is empty).

## Skin

Use the skins to change the appearance of the dashboard in the Cortona3D Viewer window. This version of Cortona3D Viewer includes at least two simple skins: Default and CAD-like.

To apply a skin:

- In the list of skins select the skin you want to apply and then click Apply.

When you apply a skin it is then displayed in the Cortona3D Viewer 3D window. Please note that Cortona3D Viewer provides the capabilities for creating your own user interface. The description of the types of files you can use to make up a complete skin can be found at ParallelGraphics website.

## Interacting with the Scene

Some of the objects in the scene may provide special effects that allow the user to interact with the scene in different ways. As you position the pointer over the object, containing a VRML *sensor*, the pointer changes:



**Touch Sensor.** Detects a click or the pointer over the object. The sort of activity in the scene is decided by the VRML author.



**Anchor.** Clicking will link to the other object, VRML world or HTML document.



**Cylinder Sensor.** Transforms pointer motion into a rotation of the object around its axis.



**Sphere Sensor.** Transforms pointer motion into a rotation of the object around its two axes.



**Plane Sensor.** Transforms pointer motion into a moving of the object.



**Drop Sensor** (VRML extension). Handling a drag-and-drop operation. Retrieves an object's uniform resource locator (URL) of an object (resource) dragged to the 3D window.

### Note:

The following node types are pointing-device sensors: Anchor, CylinderSensor, PlaneSensor, SphereSensor, and TouchSensor. You can enable or disable them in Cortona3D Viewer excepting the Anchor sensor by pressing the Pause keyboard button.

## Using Cortona3D Viewer in HTML Documents

To display a VRML world in a Web browser authors should use the EMBED or OBJECT (supported by Internet Explorer) elements with the proper attributes in an HTML document:

### An example of using EMBED

```
<EMBED src="file.wrl"
width="300" height="300"
type="application/x-cortona"
pluginspage="http://www.cortona3d.com/cortona"
vrml_dashboard="false"
vrml_background_color="#000077"
ContextMenu="false">
```

where

*src*

specifies the name of the VRML scene to be loaded.

*pluginspage*

if the user doesn't have a plug-in installed to handle the defined object data type, then it is possible to guide the user to a different URL (the value of the pluginspage attribute) to provide instructions on installing the necessary plug-in module.

*vrml\_dashboard*

"true" - turns on horizontal and vertical toolbars; "false" - turns off.

*vrml\_background\_color*

"#rrggbb" specifies the background color of the 3D window (hexadecimal).

*ContextMenu*

"true" - enables context menu in the 3D window; "false" - disables.

For more information about the Cortona plug-in specific attributes, see Table 1.

### An example of using OBJECT

```
<OBJECT classid="CLSID:86A88967-7A20-11d2-8EDA-00600818EDB1"
width="300" height="300">
<PARAM name="Scene" value="file.wrl">
</OBJECT>
```

where

*classid*

identifies the Cortona ActiveX control for the browser. The value must be entered exactly as shown.

*width, height*

standard formatting attributes.

*Scene*

specifies the name of the VRML scene to be loaded.

For more information about the Cortona plug-in specific attributes, see Table 1.

Table 1. OBJECT and EMBED Parameters

<b>Parameter</b>	<b>Description</b>
AnimateViewpoints	Determines whether the viewer moves smoothly between the previous and the chosen viewpoints. If this parameter is set to True, the viewer's motion is smooth. If this parameter is set to False, the viewer jumps instantaneously from one viewpoint to another. Default value: False
BackColor	Specifies the background color of the Cortona 3D window (for example, blue color: &hFF0000). This property is ignored if the current VRML scene contains Background VRML nodes. Default value: &h000000
ColliderMode	Possible values:&h000000 - &hFFFFFF Specifies collision detection in Cortona. If this parameter is set to 0, Cortona uses the collision method specified by the author of the VRML scene. If the bound NavigationInfo VRML node in the scene defines the WALK navigation type, collision detection is enabled, otherwise it is disabled. Note that if the current scene does not contain a NavigationInfo node, collision detection is disabled. If this parameter is set to 1, collision detection is always on. If this parameter is set to 2, collision detection is always off. Default value: 0
ConsoleMode	Specifies the behavior of the Cortona Console window. If this parameter is set to 0, console is invoked by a message sent to it. If this parameter is set to 1, console is hidden. If this parameter is set to 2, console is displayed. Default value: 0
ContextMenu	Determines whether the user can invoke the context (pop-up) menu in the Cortona Control window. If this parameter is set to True, the user can invoke the context menu by right-clicking the Cortona Control window. If this parameter is set to False, the user cannot invoke the context menu. Default value: True
CpuLoading	Specifies the maximum amount of the processor time (in percent) that Cortona Control can use. This parameter can take values in the range from 0 (minimum performance in Cortona, maximum processor idle time) to 100 (maximum performance in Cortona, zero processor idle time). Default value: 80
HeadLight	Specifies whether the headlight is 'on' in the Cortona 3D window. If this parameter is set to True, the headlight is turned on. If this parameter is set to False, the headlight is turned off. Default value: True
InputDevices	Specifies input devices that can be used for navigating in the Cortona 3D window: 1 - Keyboard, 2 - Mouse, 4 - Joystick. These values are bit flags, and may be combined to select multiple input devices. The absence of a flag signifies that the corresponding device is disabled. By default, all the input devices are enabled and the property has a value 7.
LoadDroppedScene	Determines whether the VRML scene with its uniform resource locator (URL) dragged to the Cortona 3D window replaces the current scene. If this parameter is set to True, the current scene is replaced. If this parameter is set to False, the current scene is not replaced. This parameter should be used together with a DropSensor node. Default value: True

Table 1. OBJECT and EMBED Parameters

MuteSound	Specifies whether sounds are on in Cortona. If this parameter is set to 0, sound is muted when a window containing Cortona Control loses focus. If this parameter is set to 1, sound is off. If this parameter is set to 2, sound is on. Default value: 0
NavigationBar	Determines whether the Cortona navigation bar (toolbars) is displayed or hidden. If this parameter is set to 0, the navigation bar is hidden. If this parameter is set to "1", the navigation bar is displayed. Default value: 0
NavigationMode	Specifies navigation mode (type) in Cortona. 0 - the NONE navigation type 1 - the WALK navigation type 2 - the FLY navigation type 3 - the EXAMINE navigation type 4 - the AVATAR navigation type Default value: 0
NavigationStyle	Specifies navigation style (option) in Cortona. Default value: "plan" Possible values: "plan", "pan", "turn", "roll"
PixelBufferAccess	Activates the mode, where Picture property of Cortona Control or GetBuffer in I3DviewService3 interface is accessible. If this parameter is set to True, the DirectX9 printing compatible mode is activated. If this parameter is set to False, the DirectX9 printing compatible mode is deactivated. Note: This property is used in the DirectX9.0 renderer mode only. Default value: False
RendererHints	16 (0010 hex) Optimize all textures in the scene for speed (this hint corresponds to the Limit texture sizes option in the Cortona Control Properties dialog box). 32 (0020 hex) Optimize all textures in the scene for quality. 128 (0080 hex) Do not render textures. 256 (0100 hex) Show the Wireframe View of the scene. Objects in the scene appear to be outlined with wires rather than solid. 512 (0200 hex) Anti-alias geometry edges (dynamic anti-aliasing). The anti-aliasing technique smooths out jaggies in curves displayed in the Cortona 3D window. 1024 (0400 hex) Dither colors if needed. Dithering improves the quality of rendering, but may lower performance. 4096 (1000 hex) Use texture mip-mapping. When a scene contains acutely angled polygons that disappear into the distance, low- and high-resolution versions of the same texture are mixed to reduce the jagged effect. 16384 (4000 hex) Use Phong lighting model. 32768 (8000 hex) Anti-alias geometry edges in static scenes. 1048576 (100000 hex) Render VRML scenes in accordance with the VRML97 Specification. If this hint is not set, simplified lighting equations and rendering techniques, which provide higher performance, are used. Default value: depends on selected renderer
RendererMaxTextureSize	Specifies the renderer's maximal textures size Default value: 0 Possible values: 0, 256, 512, 1024, 2048

Table 1. OBJECT and EMBED Parameters

RendererName	<p>Specifies the renderer in Cortona by name. Assignments of a new value to this parameter forces Cortona to use the chosen renderer.</p> <p>Default value: depends on hardware configuration</p> <p>Possible values: "OpenGL Renderer", "DirectX Renderer", "R98 Renderer"</p>
Scene	<p>Specifies the URL of the scene. In case of the relative path, it is resolved as relative to the directory, containing HTML page with the control. The loading is asynchronous.</p>
ShowFps	<p>Determines whether the status bar of the Internet browser displays the current frame rate in the Cortona 3D window. If this parameter is set to True, frame rate is displayed. If this parameter is set to False, frame rate is not displayed. The format of the frame rate output is determined by the value of the showrenderingtime parameter.</p> <p>Default value: True</p>
show_hidden_viewpoints	<p>Determines whether the list of viewpoints in Cortona Control includes Viewpoint nodes with empty description fields. If this parameter is set to True, viewpoints with empty description fields are shown. If this parameter is set to False, viewpoints with empty description fields are hidden.</p> <p>Default value: False</p>
ShowLogo	<p>Determines whether Cortona splash screen is shown when the VRML file is loaded in Cortona Control. If this parameter is set to True, Cortona splash screen is shown. If this parameter is set to False, Cortona splash screen is not shown.</p> <p>Default value: True</p>
ShowProgress	<p>Determines whether the status bar of the Internet browser shows the current state of the scene loading process. If this parameter is set to True, the state of the scene loading process is shown. If this parameter is set to False, the state of the scene loading process is not shown.</p> <p>Default value: True</p>
showRenderingTime	<p>Specifies format of the frame rate output in the status bar of the Internet browser. If this parameter is set to True, frame rate is displayed in milliseconds per frames (ms). If this parameter is set to False, it is displayed in frames per seconds (fps).</p> <p>Default value: False</p>
Skin	<p>Specifies the name of the current skin in Cortona Control. An assignment of a new value to this property forces Cortona to redraw the Cortona Control window with the specified skin.</p> <p>Format: &lt;clsid&gt;[;&lt;URL&gt;[#Version=&lt;version&gt;]]</p> <p>where&lt;clsid&gt; - UUID of the skin. Should be equal to UUID defined in the manifest file and in the skin definition file of the package file.&lt;URL&gt; - The URL of the package file that contains the skin. For relative URLs, the base URL is the URL of the HTML document. &lt;version&gt; - The skin version number in the following format: major, minor, release, build.</p> <p>Possible values of &lt;clsid&gt;:</p> <p>"{1706B265-E103-4332-9871-7FEE6C37C699}" Default skin</p> <p>"{46BB95BF-8EB4-481A-A1EF-50D43FC32B9D}" CAD-like skin</p> <p>Default value: "{1706B265-E103-4332-9871-7FEE6C37C699}"</p>
SlowMode	<p>Specifies a factor of rendering speed reduction in the Cortona 3D window. The value of this property should be greater or equal to 0. The default value of this property is 0 (speed is not decreased).</p>
src	<p>The URL of the current VRML scene. When the property is set, launches the specified VRML file.</p>



Table 1. OBJECT and EMBED Parameters

TravelSpeed	Determines the speed factor for the viewer navigation in the VRML scene. The actual speed of the viewer in the scene is the multiplication of the speed factor and the value of the speed field of the bound NavigationInfo node in the VRML scene (the default value of this field is 1 metre per second). Default value: 1 Possible values: 0, 1, 2, 3, 4
VRML_BACKGROUND_COLOR	Determines the background color of the Cortona 3D window. This parameter is ignored if the current VRML scene contains Background VRML nodes. Default value: #000000 Possible values: #000000 - #FFFFFF
VRML_DASHBOARD	Determines whether the Cortona navigation bar (toolbars) is displayed or hidden. If this parameter is set to False, the navigation bar is hidden. If this parameter is set to True, the navigation bar is displayed. Default value: True
VRML_SPLASHSCREEN	Determines whether Cortona splash screen is shown when the VRML file is loaded in Cortona Control. If this parameter is set to True, Cortona splash screen is shown. If this parameter is set to False, Cortona splash screen is not shown. Default value: True
viewpoint_transition_mode	Specifies whether transitions between viewpoints (when a new viewpoint is bound) are smooth. If this parameter is set to 0, the behavior of the viewpoint depends on the value of the jump field of the Viewpoint node to be bound. If this parameter is set to 1, the viewer moves to a new position with a transitional effect. If this parameter is set to 2, the viewer instantaneously jumps to a new position. Default value: 0
WaitForAllResources	Specifies whether Cortona delays displaying the scene until all its resources are loaded. If this parameter is set to True, the scene will not be shown until all resources are loaded. If this parameter is set to False, the geometry of the scene will be shown immediately after the main VRML file is loaded. Default value: False

## Skins

Skin is a customizable user interface that gives unique look and feel to Cortona3D Viewer. When using skins it is possible not only to define custom toolbars or redefine navigation in 3D scene, but also to get access to the Cortona engine and to perform various manipulations with VRML scenes which are loaded in Cortona3D Viewer.

Skins allow developers to specify the following parameters:

- Location and size of the toolbars (it is possible to define different toolbars for various sizes of the Cortona Control window);
- Buttons and text labels on the toolbars;
- ProgressBar control to display the scene loading progress;
- Custom mouse cursors;
- Keyboard keys which can be used for invoking commands from the keyboard;
- Navigation rules and styles;
- Parameters of the Cortona 3D window.

Within skins developers can create handlers for mouse, keyboard and scene loading events. These handlers can be JavaScript commands or functions defined in external files. Skin elements, Cortona Control and Cortona engine are represented inside these functions by

appropriate JavaScript objects. The properties and methods of JavaScript objects can be used for modification of the skin elements and implementation of the Cortona Control and VRML Automation functionality.

## How to load and choose a skin in Cortona3D Viewer

If Cortona Control is embedded in an HTML page or used in an application, the developer can specify a skin that will be loaded and chosen in Cortona3D Viewer. The following samples show how to load and choose the CAD-like skin in Cortona3D Viewer:

```
<OBJECT ...>  
  <param name="Skin" value="{46BB95BF-8EB4-481A-A1EF-50D43FC32B9D}";  
  http://download.cortona3d.com/public/cortona3d_viewer/cad.zip">  
</OBJECT>
```

```
<EMBED src="..." ... Skin="{46BB95BF-8EB4-481A-A1EF-50D43FC32B9D}";  
http://download.cortona3d.com/public/cortona3d_viewer/cad.zip">
```

```
Cortona1.Skin:='{46BB95BF-8EB4-481A-A1EF-50D43FC32B9D }';  
http://download.cortona3d.com/public/cortona3d_viewer/cad.zip';
```

The UUID of the Default skin is "{1706B265-E103-4332-9871-7FEE6C37C699}".

More detailed information on skins can be found inB Cortona SDK, including:

- Requirements to the manifest file and skin definition file;
- The full list of the elements that can be used in skin definition files and their attributes;
- The list of the virtual key codes (for using keyboard commands), mouse and joystick commands;
- Description of the use of JavaScript functions in skins;
- Guidelines on skin deployment;
- The skin tutorial, which demonstrates how to create a simple skin for Cortona VRML Client, and samples (CAD-like and ColorPicker skins).